Sept. 19, 1944. W. H. TRIPPE 2,358,671

DETACHABLE POWER UNIT USING SOLID FUEL FOR BICYCLES

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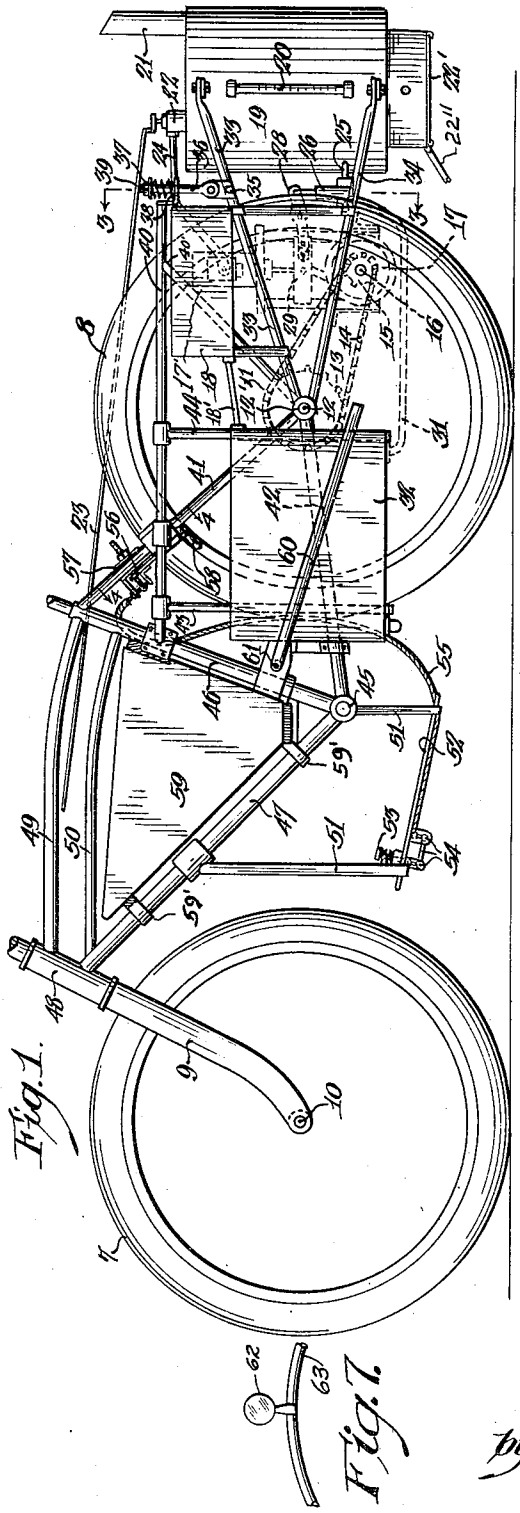


Fig. 1.

Fig. 2.

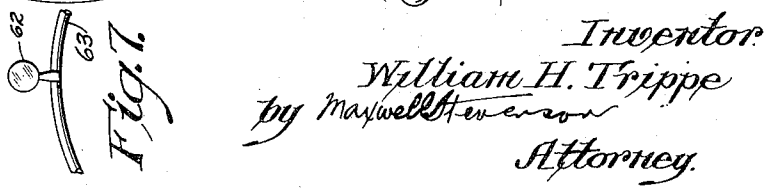


Fig. 3.

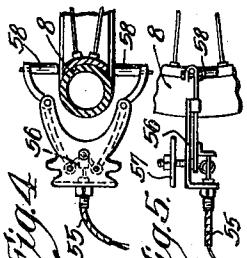


Fig. 4.

Fig. 5.

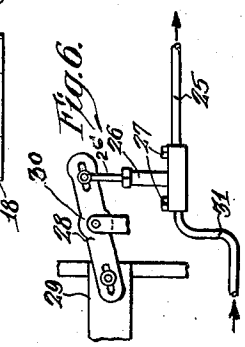


Fig. 6.

Fig. 7.

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DETACHABLE POWER UNIT USING SOLID FUEL FOR BICYCLES

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2 Claims. (Cl. 180—33)

This invention relates to an improvement in a detachable power unit fixture consuming solid fuel to be attached to bicycles, especially those used by adults, and to propel the same by steam power, using any solid fuel which is carried therewith.

A further object is to provide an improvement having parts which can be assembled with no great difficulty, and is adapted to be used for business or pleasure, and is of great aid when unable to obtain motive fluid.

Another advantage is that the operator, should he run short of fuel, can readily gather the same, especially wood along the highways.

While the foregoing explains the general purpose, objects, and advantages of the device, other objects and advantages will appear in the specification that follows in which the novel features, construction, and arrangement of the parts will be brought out, described and claimed.

In the accompanying drawing, forming a part of this specification, and in which corresponding parts are denoted by like designating numerals, is illustrated the preferred form of the invention capable of carrying the same into practical operation, it being understood that the invention is not necessarily limited thereto, as minor changes may be made without departing from the principles of the invention, or sacrificing any of the advantages, in which:

Figure 1 is a fragmentary side elevation.

Figure 2 is a fragmentary top plan view of Figure 1.

Figure 3 is a fragmentary transverse section of Figure 1 taken on the line 3—3 of Figure 1.

Figure 4 is a fragmentary sectional plan view taken on the line 4—4 of Figure 1 showing the brake mechanism.

Figure 5 is a side elevation of Figure 4.

Figure 6 is an enlarged side elevation of a portion of Figure 1 showing the check valve and feed pump mechanism.

Figure 7 is a fragmentary view of the handle bar having a mirror attached thereto.

The numeral 7 shows the usual front wheel of a bicycle, and 8 the rear wheel; the fork of the front wheel is indicated by 9, the front axle 10. The numeral 12 shows the rear axle with the conventional ball-bearing hub 12', while 13 is a sprocket wheel attached to the hub of the rear wheel 8. The numeral 46 indicates the seat supporting rod; 47 a supporting rod extending from the pedal crank shaft to the steering member, 48; the numeral 49 presents a supporting member extending from the steering post to the seat rod 46, and 50 a supplemental supporting rod. A chain 14 for driving the above mentioned rear wheel engages with the sprockets 13 and 15 which latter is attached to engine shaft 16 of a steam engine. Numeral 17' indicates the engine and its frame. The numeral 17 indicates the fly wheel of the engine; the numeral 18 shows the condenser, and 18' a flexible connection leading to the water tanks 32. The condenser is located slightly higher than the water tanks, in order that the condensate will drain back into the tanks. The numeral 19 indicates a boiler, with feed door 19' on the uppermost part of the body of the boiler, and a control throttle 22. The numeral 20 shows a water level gauge mounted on the side of the boiler and in such a position that the level of the water in the boiler can be read by reflection in a mirror 62 conveniently mounted in front of the rider at a proper distance off from the center line of the frame of the bicycle, preferably on the handle bar 63. An exhaust stack 21 carries off the exhaust gases from the fire. The numeral 22' indicates an ash pan at the lower extremity of the same, and 22'' a door for the removal of ashes. A throttle rod 23 is shown extending from the throttle valve to a lever mounted on the handle bar of the bicycle. The steam pipe connection 24 to the engine and a pipe line feed 25 connects to the boiler; 26 shows a feed pump cylinder, and check valves 27 located on the pump. A walking beam lever 28 to transmit motion from the cross head 29 to a pump plunger 26', a bearing support 30 for the said walking beam, and a feed pump supply line 31 from the tanks to the pump. The numeral 32 denotes the water tanks which are supplied by means of a removable filling cap. Top rods secured to the bearing 12 to a predetermined position on the boiler, with like members 34 at the lower portion of the boiler, these rods giving support in maintaining the boiler in position. Numeral 35 designates a rod connecting with the aforesaid upper rods 33, while 36 indicates suspension rods sliding through ports provided in the rod 38 which support the greater part of the weight with the assistance of the springs 37 which compensates shock, terminating in the bearing 36' through which the rod 35 acts as an axle. Springs 37 are shown, as stated, located on the end of a fixed tube 40 which has brazed thereto a tube 40', the lower end thereof being connected to the main axle of the bicycle hub, while 41 shows the upper rear forked portion of a bicycle, and 42 the lower forked portion of a

bicycle. The numeral 43 indicates a front rod connected with the aforementioned rod 40 and extending downwardly therefrom, and 44 a rear rod which is also connected at the uppermost portion of the fixed rod 40, these rods support the water tanks located on each side of a bicycle. The pedal crank shaft housing is shown by the numeral 45, to which is connected a rear hanger, with a front hanger 51, being connected to the member extending from the crank shaft to the steering rod to support foot rests 52, which, in turn, are connected with a controllable brake button 53 located on a spring member which controls and operates a cable extending in a proper housing 55 through the medium of the angular lever 54. The numeral 56, in Figure 4, indicates a toggle lever which operates the lever arms of the rim brake, the ends of which carry the brake shoes 58, while 57, Figure 5, is a clamp plate securing the rim brake mechanism to the uppermost portion of the rear forked portion 41. A storage receptacle is shown by the numerals 59, the function of which is to carry solid fuel, such as coal, coke, wood, charcoal, briquettes, or compositions of like material, as well as other necessary material for starting the solid fuel fire, as well as tools and equipment, and can be constructed of light metal or plastic material. This storage receptacle is removably attached to the fixed frame of a bicycle by means of clamping members 59' which have attached to the inner surface of their clamping contour shock absorbing material to deaden the vibrations or shock before transmission to the frame of the bicycle. All clamps used to attach any or all parts of the power unit to the frame of a bicycle are thus equipped.

All parts of the supporting frame work which carries the removably attached mechanism are constructed of light weight rods or tubular metal material. The boiler, as can be readily understood, is not of the usual size or weight, but comparable power with that needed to propel the vehicle to which it is attached.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:

1. In the combination of a detachable power unit using solid fuel for driving a two wheeled vehicle, a bicycle frame a supporting rod attached to the seat rod of said frame and extending rearward therefrom, twin rods spaced one from the other extending downwardly therefrom, water tanks supported by said rods, a rod attached centrally between the rods maintaining the water tanks, to the first mentioned rod, and attached to the rear axle hub upon which is located a sprocket wheel, a rod extending from the said rear axle hub to the pedal hub, a rod extending upwardly at an angle from the rear axle hub to the first mentioned rod, upper and lower disposed rods from the rear axle hub, a boiler supported by said rods, a rod having a shock absorbing member said rod connected to the upper rod and extending upwardly and connected to the rod attached to the seat rod, a sprocket wheel attached to an engine shaft, an engine driving said shaft giving movement to the aforesaid sprocket wheel upon which is a linked member giving movement to the first mentioned sprocket wheel and driving the rear wheel of the vehicle.

2. In the combination of a detachable power unit using solid fuel for driving a two wheeled vehicle, a bicycle frame, a supporting rod attached to the seat rod and extending rearward therefrom, twin rods spaced one from the other at a predetermined distance and extending downwardly from the uppermost supporting rod, water tanks supported by said rods, a rod attached centrally between the two rods supporting the water tanks, to the first mentioned horizontally positioned rod and attached to the rear axle hub, a sprocket wheel attached to the axle of the rear wheel, a rod extending from said rear axle hub to the pedal hub, a rod extending upwardly at an angle from the said rear axle hub to the first mentioned supporting rod, upper and lower disposed rods attached to the rear axle hub and extending therefrom and attached to and supporting a boiler, a rod having a shock absorbing member connected to and extending upwardly from the top supporting rod connected to the boiler, an engine, a shaft from said engine having a sprocket wheel, said sprocket wheel giving movement to the rear wheel of a bicycle by means of a linked member working in connection with the first mentioned sprocket wheel, and means for supplying the said boiler with the necessary fluid for conversion into steam.

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